

## APPLICATION OF TQM PRACTICES AND SECTORIAL IMPLICATIONS IN INDUSTRY- A CASE STUDY ON BREWING INDUSTRY

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### ABSTRACT

*The word quality associates with performance, features, reliability, conformance, durability, serviceability, perceived quality, safety, comfort, security, etc. Quality assurance is the system of policies, procedures and guidelines which helps in specified standards of product. A quality system is a process that combines with manufacturing process to ensure that the manufacturing process produces quality products. Kerala has the 13<sup>th</sup> largest economy in India amounting a total revenue of Rs.93585 crores (2017-18 est.), 23% of the revenue being continuously derived from the sale of the liquor industry. In 2015, Oommen Chandi's (UDF) government passed a special resolution to ban the sale of liquor in the state, with an aim to safeguard the general public, but practically there was a reason behind it, by getting a mass public attention for the next election. Subsequently, there was a revenue loss to the state only because of the ban restriction. At this juncture, the researcher makes an attempt to undergo his research in the title of "Application of TQM practices and Sectorial implications in Industry- A case study on Brewing Industry"*

**KEYWORDS:** *Quality, Reliability, Sectorial changes & Liquor Industry*

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### INTRODUCTION

The word "liquor" is derived from French word liqueur (to liquefy). Liquor is an alcoholic beverage made from distilled beverage that has been flavored with fruit, cream, herbs, spices, flowers or nuts and bottled with added sugar or other sweetener (corn syrup). Liquors are historical descendants of herbal medicines; they were made in Italy as early as 13<sup>th</sup> century and were often prepared by monks. Nowadays, it's used in cooking. Alcohol (ethanol), a depressant which in low doses causes euphoria, reduced anxiety, and sociability, impaired judgement, fine muscle coordination; and higher doses cause intoxication, stupor and unconsciousness. Drinking alcohol plays an important social role in many cultures. Most countries have restrictive laws regulating the production, sale and consumption of liquor; some countries ban such activities entirely like Muslim countries. The global alcohol drink industry exceeded \$1 trillion in 2014. Alcoholic drinks are typically divided into 3:-beer, wine, & spirit; it may contain between 3% to 40% alcohol by volume. Many animals also consume alcohol when given the chance and are affected in much the same way as humans.

Results of the 2010 ISCD (International Society for Clinical Densitometry) study ranking the levels of damage caused by drugs, in the opinion of drug-harm experts. When harm to self and others is summed, alcohol was the most harmful of all drugs considered, scoring 72%. IARC (International Agency for Research on Cancer)

classifies alcoholic drink consumptions as a cause of female breast, colorectum, larynx, liver, esophagus, oral cavity, pharynx cancers. Liquor industry growing 30% annually. More than 1/5<sup>th</sup> of alcohol produced in the world is consumed by Indians, 2/3<sup>rd</sup> unrecorded or illicit.

In Kerala which has the 13<sup>th</sup> largest economy in India, where 23% of total government revenue came from liquor sale. Therefore, quality based liquor products have been significantly produced to meet the requirements of the consumers by fulfilling the appropriate qualitative techniques in the production line.

## LITERATURE REVIEW

- Edwards(1994) “pointed to evidence which suggested that longer hours during which alcohol could be sold had led to increased social problems”
- Olsson & Wikstram(1982) “suggests that in some circumstances variation in sales hours can have a direct impact on alcohol problems”
- Rittel & Webber (1973) “no evidence that public drinking bans reduced congregation of drinkers, were understood and adhered to by the community, or reduced alcohol-related crimes or benefiting the community”
- Justice P.B.Sawant (2014) “The State can prohibit completely the trade or business in potable liquor since liquor as a beverage is res extra commercium”
- Raj Chingaravelu (2014) “The changes in the liquor policy were ostensibly brought through with the view of promoting prohibition, & thereby improving the standard of public health in the State” counter-“How can this special treatment of 5 star hotels possibly help the Kerala government in achieving these objectives?”
- Suhrith Parthasarathy (2015) “Kerala’s new law is an extension of an ingrained form of classism that is demonstrably opposed to the guarantee of equality under our Constitution. The judgement in the Kerala Bar Hotels Association case is therefore deeply unsatisfactory and requires reconsideration”
- V.Suresh (2010) “The policy will create quite a few liquor barons who will smuggle, manufacture or otherwise supply the huge demand for liquor in Kerala”
- K.K. Shailaja (2008) “The growth in liquor industry contributes a great deal to the economic growth in India”
- Aravind Subrmanian (2005) “Multinational alcohol beverage companies redeploying from shrinking markets, in the developed world have identified India, with its growing consumer base, vast unexploited markets & commitments to the World Trade Organization to reduce quantitative restrictions on alcohol imports as one of the most attractive markets for investment”
- Bimal Jalan (2006) “In recent times, the trade papers have reported a spate of buyouts of local beverage companies by multinational companies. The revenue aims of state governments are at odds with their health and welfare aims as they push sales by imposing annual incremental quotas on production and sales”
- Srinivas Srinaresh, Excise Commissioner, Andhra Pradesh (2005) “Every attempt by individual state governments to prevent misuse through prohibition has been hastily reversed in the face of mounting revenue deficits, costs of policing smuggling from neighboring states and resulting underground alcohol economies, notwithstanding

evidence of decreased consumption and improved indices of economic wellbeing”

- Sushil Chandra, Chairman, Central Board of Direct Taxes (2001) “Increased taxation has been used in other countries, to reduce consumption. In India, the impact of such measures is weak as consumers have easy access to undocumented or illicit alcohol, beyond the purview of taxation”

## **STATEMENT OF THE PROBLEM**

In spite of continuous development in technological changes, never gave significant impact on the consumption of alcohol as it is quality inelastic in nature.

Kerala, being a communist state, there is less chance of getting funds from Union government. Therefore, they want to mobilize from their own self, like revenue generation from the sale of liquor.

But, UDF government made a sudden ban to sell liquor/alcohol with an aim to attract general public by fulfilling their pre-election promise. Unfortunately, their expectation got failed, it was a predicament given by senior economists of the state due ban period.

Following government (LDF) made a successful initiative to remove the ban restrictions towards liquor, which highly yield good quality of alcoholic products.

Being the citizen and young researcher of Kerala, he wants to make an attempt to undergo his research work on the topic “Application of TQM practices and Sectorial implications in Industry- A case study on Brewing Industry”.

## **OBJECTIVES**

- To implement the appropriate qualitative techniques in liquor industry of Kerala.
- To measure different group of products based on quality and identify changes in production in Kerala during post-banning period.

## **METHODOLOGY**

This study requires secondary data which were collected from prestigious journals, reports, records, articles and official sites of Kerala State Beverages Corporation.

In order to assess the productivity of liquor products in Kerala State, the researcher has adopted Trend Analysis technique by using R-chart and inventory levels based on ABC Analysis.

### **Period of the Study**

In order to examine the quality of liquor, the production during the period from 2013 to 2017 are taken. The required secondary data are collected from various news articles and websites during the above mentioned period. Thus the study covers a period of 5 years in which the researcher is highly interested to compare the Sectoral challenges based on the ban so imposed by UDF government on April 2014. The present study focus on quality, economic, social challenges faced by Kerala State before and after of new alcohol policy.

### **Tools for Analysis**

In order to analyze the vulnerable changes in selected variables based on direct proportion of production of liquor

in Kerala State by using Trend Analysis as a statistical tool through R-test as a controlling tool for identifying the defective products in the study area.

## FRAMEWORK OF ANALYSIS

### R-chart

Liquor industry in Kerala face structural challenges in its production during new alcohol policy, with the support of R-chart attributes of the product grouped into IMFL, Beer, Wine based on their standard, in some exceptional cases acute beer and wine somewhere included in the category A and B like IMFL and beer by deviating from the regular stream of beer and wine. On an average their new liquor policy during pre and post ban randomly selected from April 2016 to March 2017 with the statistical data selected product of alcohol in liter measurements with rupee value.

**Table 1: Quarterly Output of Liquor Products**

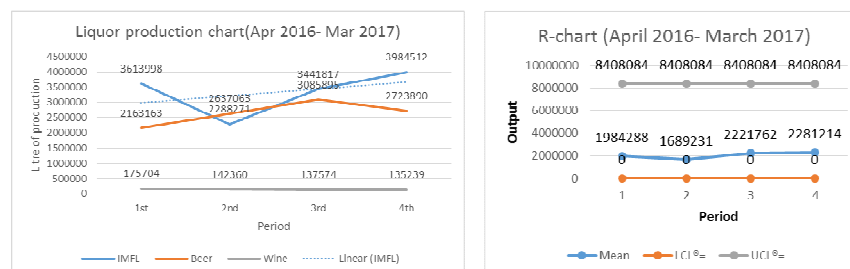
Period	IMFL	Beer	Wine	R	Mean	LCL	CL	UCL
1st Quarter	3613998	2163163	175704	3438294	1984288	0	3271628	8408084
2nd Quarter	2288271	2637063	142360	2494703	1689231	0	3271628	8408084
3rd Quarter	3441817	3085895	137574	3304243	2221762	0	3271628	8408084
4th Quarter	3984512	2723890	135239	3849273	2281214	0	3271628	8408084

Source: Kerala State Beverages Corporation

**Table 2: Statistical Result of R-chart Variables**

Mean of Range	Mean of Mean	Sample Mean Factor	Upper Range	Lower Range	Control Chart	
					UCL	LCL
3271628	2044124	1.02	2.57	0	8408084	0

Source: Kerala State Beverages Corporation



Source: Kerala State Beverages Corporation

**Figure 1**

The study also revealed that there is no specific enhancement of the production of IMFL (A category) during the ban period and also performed well in the 1<sup>st</sup> and 4<sup>th</sup> quarter. There had been a continuous decrease in production of substandard products like beer (Category B) and wine (Category C) after ban release.

R-chart highlighted that the combined mean of output of liquor products are significantly equal in all quarters except 2<sup>nd</sup> quarter i.e., during the new liquor policy. The graph also exhibited for UCL and LCL without making any further changes during the study period.

## ABC Analysis

(Per capita per day consumption in milliliters)

**Table 3**

Year	Category A&B	Category C
2011-12	102	94
2014-15	97	120
2016-17	110	80

**Source:** Kerala State Beverages Corporation

The above table reveals that the details of per capita per day consumption of liquor for selected three groups of products like IMFL, Beer and Wine respectively, for the three different periods 2011-12, 2014-15, 2016-17 respectively. The table also found that IMFL and Beer categorized into group A & B, but C for Wine. Group A & B mutually inclusive of very less significant inferences with neighboring group due to their reasonable quality, but the category C only for less quality product. The country made liquor are also less quality group, but in this inference which did not include. The present study found that there was a positive significant relationship between production technology and related output. The table also highlighted that there was more production of less graded products, i.e., C category during the ban period (2014-15). Later on there had been adverse effect on standard product performed well in its production

## Impact of New Alcohol Policy on Liquor Production and Imports

Amount in litre

**Table 4**

Date of ban restriction	August 2014	IMFL	Beer	Total
		442800	242100	684900
Date of ban release	June 2017	1195778	777169	1972947

**Source:** Kerala State Beverages Corporation

The above table revealed that approximately liquor production increased by 288.06% from date of banning (August 2014) to date of ban release (June 2017). This result consonance with the total production of liquor increased by 1288047 litres which subsequently reflected the GDP and contributed to the public revenue of the state and the nation.

## Comparative Liquor Output during New Alcohol Policy

(Figures amount of litres sold)

**Table 5**

Period	IMFL	Beer	Wine	Total
2013-14	8086103	426322	6359	8518784
2014-15	7386535	384167	7713	7778415
Actual annual change	-699568	-42155	1354	-740369
2015-16 (Apr-Sep)	6742997	607227	17382	7367606
Actual annual change	-643538	223060	9669	-410809

**Source:** Kerala State Beverage Corporation

The above table depicts that the on-record liquor consumption was reduced during ban period as a direct levy and proportionate increase of tax of the ruling government for the product.

## Trend Percentage

**Table 6**

Specifics	Actual value(in crores)					Trend Percentage				
	2011-12	2012-13	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16
Liquor	7227.56	8097	9194	7465	10135	100	112.029	127.207	103.285	140.227
Beer	634	721	801	818	1442	100	113.722	126.340	129.022	227.444
Total	7861.56	8188	9995	8283	11577	100	104.152	127.137	105.360	147.260

**Source:** Kerala State Beverages Corporation

There is a steady growth in liquor sale till 2013-14, thereafter sudden decrease in 2014-15 because of ban. The table also revealed that there was an increase(36.942%) due to relaxing of liquor banning policy of the State government, but, there was a continuous increase in beer sale throughout the study period because there was no banning policy for that product and also revealed that the sales was double time increased during 2015-16.

## FINDINGS

### Industrial Challenges

- Unable to spent amount for public expenditure in the state as there was a sudden fall in quality from liquor production.
- Drastic increase in usage of drugs in the state by involving low quality ingredients in the production process.
- Unapproved entry of alcoholic suppliers from neighboring states has significantly influenced the quality of output.
- Less quality products and unauthorized manufacture and their related production directly affects the socio-economic condition of the consumers.
- Liquor restrictions, in time, induced the consumers to have high dose illicit, there was a vulnerable challenge to the state government for sustaining quality products.
- Prior ban, Kerala had the country's highest per capita consumption of liquor at 8.3 litres/year. Subsequently there was a loss about 12000 crores as a result of less quantity of production.
- According to media's report, 32% respondents from hotels & resorts and 19% tour operators are highly dissatisfied with new liquor policy of the Kerala State, they also revealed that which will encourage and increase the revenue to neighboring states by losing state production of Kerala which directly affect auxiliary industries including hospitality industry, MICE business(M-meeting halls, I-incentive meetings, C-conference & convention halls, E-events & exhibition) and the overall productivity of the state.
- Statistical inferences of Kerala liquor production depicted there was a lump sum decrease in MICE industry due to liquor ban in Kerala. It has been found that the MICE industry was proportionately being decreased from 9% in 2013, 4.8% in 2014, to -0.6% in 2015, moreover 6% adults & 54% heavy drinkers are physically, mentally, economically so affected because of sudden fall of liquor production after ban.
- In 2015 liquor policy restriction directly led to cancel the big events, corporate functions, conferences, social events in Kerala, in turn, it also affected Kerala by affecting employability & reducing business opportunities.
- Kumarakum & Kovalam are the most famous destined tourism places in Kerala which also affected by the sudden ban of new liquor policy. Hotel industry, related small business aggressively suffered. It will also lead to increase

in number of anti-social elements in Kerala.

- Ban enables politicians, public and Excise departments to encourage unofficial money involvement through bribe and scam against law for unauthorized approval of industries to involve in production.
- Domestic tourist arrivals dropped to 6.6% in 2015 from 8.6% in 2010. Estimated loss of more than Rs.7000 crores annually due to reasonable losses in Tourism industry.

### **Positives of Liquor Ban Policy**

- Kerala has the highest per-capita consumption of alcohol at a staggering 8.3 litres, ahead of even Punjab. There are various social issues like domestic violence, anti-social events, accidents, including severe health problems and deaths, tied to excessive drinking and alcohol addiction apart from the obvious loss of disposable income in the lower income groups.
- A continuous consumption of alcohol lead to terrible diseases like female breast, colorectum, larynx, liver, esophagus, oral cavity, pharynx cancers have remarkably reduced during post implement banning period i.e., April 2014 in Kerala. This result is consonance with the proof of IARC report.
- Ethical challenges are comparatively reduced during pre-ban period.
- Study revealed that 1/3<sup>rd</sup> of the crime rates and 50% of the accidental death rate proportionately reduced because of alcoholic ban in Kerala. But, this truth cannot be voluntarily disclosed by the political party against the ruling government.
- On an average the State successfully had succeeded the expected rate of consumption from 8.3 liter per capita consumption to further lower extent, but, this statistical could not sustain for a long due to re-implement for liquor production.
- Economic reformers and state well wishers strongly assumed that there would be a sudden decrease in public revenue of the state. In spite of, it is implemented in due course only for the welfare of the state, but unfortunately it was so influenced and exploited by the next political party, in turn, the ultimate purpose was so deteriorated.
- All States banned alcoholic sale in pathway of Highways based on the judgement of Supreme Court which was also one basic parameter for the ban of liquor production in Kerala, but the succeeding state election had a barrier to remove the ban and its totally adverse society. Therefore the researcher strongly recommends that above said policy decision should be in force for future also and he also recommending that the new challenges and amendments are to be included in the existing policy of the state. At the outset the banning policy should coincide with individual welfare, family growth, society development, state progress along with the proportionate GDP growth of nation.

The study pointed out that after new liquor policy the substandard products unable to compete with IMFL. The control limits also had been negative inference of -1292937 which reflect that the structural challenges of the state possible and significantly supported the standard products. Government of Kerala may take a resolution and implement legal enforcements to channelize the substandard products with standard products always which strongly generate and increase the state revenue throughout the period.

## CONCLUSIONS

The problem of increase in production of substandard products in Kerala State through liquor banning policy might be eliminated with a combined effort on the part of stakeholders of the industry. Keen interest of the production manager with the cordial support of qualitative departments with the fulfillment of statutory guidelines of the government definitely there would be a remarkable success in the liquor industry. Auxiliary industries have faced a downfall due to the banning policy although it was implemented to safeguard the general public and to reduce alcohol related problems. Statistical evidence states that there was a rise in usage of drugs and illicit alcohol being consumed after implementation of policy and very little evidence of decreased consumption and improved indices of economic well being.

The role of alcohol industry in Kerala cannot be overemphasized in the decline of other related sectors.

At the outset the new liquor policy of UDF government of the state did not directly giving strong sectoral challenges to the liquor industry in Kerala. The researcher strongly recommended that pilot study & social survey observations, economic adviser's opinion, appropriate TQM measures with the competency of international expectation will support the state government to take rational decisions and pre-constructive protective measures to be implemented to retain for a long.

## REFERENCES

1. <https://www.mapsofindia.com/my-india/society/ban-on-alcohol-is-it-the-preventive-solution-for-alcoholism>
2. <https://www.google.co.in/amp/www.thehindu.com/opinion/editorial/pragmatic-step-kerala-new-liquor-policy/article18961290.ece/amp/>
3. <https://www.quora.com/what-are-the-merits-and-demerits-of-the-kerala-governments-new-prohibition-of-liquor-policy-what-are-its-effects>
4. <https://www.google.co.in/amp/www.timesofindia.com/city/thiruvananthapuram/kerala-relaxes-liquor-ban-after-revenue-loss/amp-articleshow/59061443.cms>
5. Mihir Solanki et al., *Comparative Study of TQM and Six Sigma*, *International Journal of Industrial Engineering & Technology (IJIET)*, Volume 5, Issue 4, November - December 2015, pp. 1-6
6. <https://www.google.co.in/amp.indiatimes.com/news/india/kerala-govt-has-just-lifted-the-ban-on-bars-liquor-will-soon-be-served-in-hotels-323463.html>
7. <https://www.ndtv.com/india-news/high-court-says-cheers-to-kerala-governments-zero-liquor-policy-654318>
8. <https://www.ndtv.com/south/losses-from-bars-kerala-jacks-up-taxes-on-liquor-cigarettes-667338>
9. <https://www.ndtv.com/cheat-sheet/supreme-court-upholds-kerala-government-liquor-policy-1260072>
10. <https://www.google.co.in/amp/www.financialexpress.com/opinion/liquor-ban-in-kerala-state-rolls-back-prohibition-allows-sales-in-star-hotels/713132/lite/>
11. <http://epaperbeta.timesofindia.com/Article.aspx?eid=31811&articlexml=State-records-30-drop-in-liquor-sales-11052017006012>
12. <http://english.manoramaonline.com/news/kerala/2017/04/02/Kerala-revenue-dry-up-liquor-outlets-vanish-national-highways.html>
13. *Panorama Yearbook 2015, Volume 1, page:102*



14. *Alcohol & Emerging Markets: Patterns, Problems, And Responses*, edited by Marcus Grant, pg:150
15. *Series-7 Current events round-up (volume 1)* pg:20
16. *India Today*, volume 23, *Brewing Debate*, pg: 132
17. *THE MEGA YEARBOOK 2017- Current Affairs & General Knowledge for Competitive Exams- 2<sup>nd</sup> edition*, Ban on sale of country-made & spiced liquor, pg:204
18. 2014. India's Kerala State plans to ban alcohol sales, August 22 <http://www.bbc.com/news/world-asia-india-28892073>.

